Dummy Cube Prototype, QA and Measurement

1. Lakshmi will specify desired **QA measurements on all coils**
   1. Dimensional check ( at three pre-selected locations of the lead wire)
   2. Resistance at room temperature ( note down the ambient conditions
   3. Hipot test ( Upper limit -500 V is sufficient for this application, note down the leakage current)
   4. Surge test ( turn-turn short if any)
   5. Inductance at 60 Hz ( using LCR meter)
   6. Temperature evolution of the coil at 3-4 A (one representative coil is sufficient).
2. Phil will provide **one dummy cube** and parts
   1. Note orientation of scribed faces
   2. Receive clips & screws to attach coils to dummy
   3. Receive example assembly of A1/A2
3. Assemble a pair of MHD's **on the dummy cube** to complete a steering magnet magnet
   1. Only two coils, that is one pair, is necessary for this test
   2. Assemble a left/right (horizontal field) or an up/down (vertical field) pair
   3. Dress leads to terminal block so opposing currents cancel
4. Perform following magnetic measurements of MHD steering magnet
   1. Considerations
      1. It’s air core, so no hysteresis
      2. Max current TBD (3-4 A likely)
      3. Z : step=0.5cm, extent=until field <1% of peak or ambient, whichever first
      4. I : step=1 A, extent +/- 3A
   2. Measure B\_dipole(x=y=0) vs. Z @ 0 A (to get background)
   3. Measure B\_dipole(x=y=0) vs. Z @ 2A and 3A
   4. Measure B\_dipole(x=y=0, z=center) vs. I for field map (-3A to +3A) @ Z=center
5. Once complete
   1. Lakshmi can validate all the magnetic measurements
   2. Gary can have BL vs. I for CED (no hyst)
   3. Phil/Marcy will have green light to assemble the non-dummy cubes